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09/940,195	08/27/2001	Rodney L. Miller	83262/N-R	4905

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EXAMINER

DUDDING, ALFRED E

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/940,195

Applicant(s)

MILLER ET AL.

Examiner

Alfred E. Dudding

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 and 38-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30-35 and 41-46 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 10, 11, 14-17, 27, 28 and 36 is/are rejected.
- 7) ☒ Claim(s) 3-9, 13, 18-22, 24-26, 29 and 38-40 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-852)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1, 7, 10, 14, 43, and 47 is objected to because of the following informalities:
  - a. claim 1, line 10 and line 16, recites "fourth signals", the antecedent basis is in line 7, the singular "fourth signal"
  - b. claim 7, line 3, recites "fourth signals", the antecedent basis is "fourth signal" in claim 1
  - c. claim 10, line 10, "second signals" has an antecedent basis in line 8, "second signals"
  - d. claim 14, line 10, recites "second signals", the antecedent basis is in line 8, "second signal"
  - e. claim 43, line 7, recites "second signals", the antecedent basis is in line 5, "second signal"
  - f. claim 47, line 9 recites "fourth signals", the antecedent basis is in line 6, "fourth signal".

The claims should be amended to correct for the mismatch in singular/plural associations.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 15, 47, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano (U.S. 6,343,846 B1) in view of Fujita et al. (U.S. 5,989,012 A).

Asano discloses an ink jet printing apparatus and a method for printing an image on a receiver medium, Figure 1, element 1, the method comprising: providing a print head having at least one nozzle that is movable relative to the receiver medium during a print pass (Column 2, lines 48 – 50) generating a first signal related to one of plural receiver media types selectable for recording the image data (Figure 7, step #101), a second signal related to one of plural types of inks selectable for recording the image data (Figure 14, three inks of different color), recording image data of the image during said print pass by depositing from said one nozzle at least three different ink drop volumes including no ink drop on the receiver medium at different pixel locations to form dots of different dot size or dot density at different pixel locations (Figure 8, table showing six ink drop volumes, Figures 9A-C show a no drop decision, i.e. pixel not printed), and wherein in recording image data of a same multitone image data value on different receiver media types, in response to the first signal related to receiver media type and the second signal related to the type of ink and the third signal related to printer resolution for recording the image data, the drop volumes deposited on one receiver medium of one receiver media type by the nozzle are different than the drop volumes deposited on another receiver medium of a second receiver media type by the nozzle and wherein receiver media type and ink type and printer resolution are used in determining drop volumes used in recording, shown in Figure 8 (table showing ink droplet volumes for a particular gradation, gradation “6” on a glossy film media is the same as gradation “5” for matte paper).

Asano fails to teach the claimed invention of a third signal related to one of plural printer

resolutions selectable for recording the image data.

Fujita et al. disclose selecting ink droplets based on resolution, ink type, and recording medium, Column 14, lines 36 – 40.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the resolution signal of Fujita et al. in the invention of Asano in order to obtain various printing modes as high quality, draft, or high speed printing.

4. Claims 2, 10, 11, 12, 14, 15, 16, 17, 23, 27, 28, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano in view of Fujita et al. as applied to claims 1 and 15 above and further in view of Shioya et al. (U.S. 6,491,372 B1).

The combination of Asano and Fujita et al. fail to teach the claimed invention of a shifted raster; and the shifted raster represents, for a predetermined printing resolution, a grid pattern of possible pixel locations on the recording medium that are shifted relative to each pixel location on the reference raster by an amount less than the spacing between adjacent pixel locations on the reference raster in the pass direction and by an amount less than the spacing between adjacent pixel locations on the reference raster in a transverse direction to the pass direction, and wherein during a pass the controller is adapted to print pixels either on the reference raster or the shifted raster but not both during any particular pass.

Shioya et al. discloses a shifted raster, Figure 3, having a grid pattern of pixel locations on the recording medium that are shifted relative to each pixel location on the reference raster by an amount less than the spacing between adjacent pixel locations on the reference raster in the pass direction and by an amount less than the spacing between adjacent pixel locations on the reference raster in a transverse direction to the pass direction, Figure 3, “recording method”, and

wherein during a pass the controller is adapted to print pixels either on the reference raster of the shifted raster but not both during any particular pass, Figure 3, “recording method”, top row and second row, pixels are printed alternatively. Figure 8 shows that ink drop values are changed in response to a change in media type.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the invention of Shioya et al. in the combined invention of Asano and Fujita et al. in order to decrease printing artifacts by a simple interlacing method.

***Allowable Subject Matter***

5. Claims 3 – 9, 13, 18 – 22, 24 – 26, 29, and 38 – 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

a. A search of prior art did not cite an ink jet printer wherein the controller, that in response to image data in the form of a multitone pixel value signal, the controller generates a fifth signal related to the drop volume related value as claimed in the limitations of claims 3 – 9.

b. A search of prior art did not cite an ink jet printer wherein the values in the reference raster table and the shifted raster table are index values used to generate outputs from the drop volume table as claimed in the limitations of claim 13.

c. A search of prior art did not cite a method of operating an ink jet printing apparatus in which the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural receiver media types, and plural inks possible for selection for the job, the code value being used to identify a table of code values

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associated with droop volumes used for printing as claimed in the limitations of claims 18 – 22, 39, and 38 - 40.

**d.** A search of prior art did not cite the shifted raster table of indices provides an index value in response to a multitone signal as claimed in the limitations of claims 24 – 26.

**6.** Claims **30 – 35**, and **41 – 46** are allowed.

**7.** The following is a statement of reasons for the indication of allowable subject matter:

**a.** A primary reason for the allowance of claims **30 - 35** is the method step of operating an ink jet printer wherein in response to the job inputs, a code value is generated from a plurality of selectable code values, the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural media types and optionally plural inks possible for selection for the job, the code value being used to identify a table of values associated with drop volumes used for printing. It is this step found the claims, as it is claimed in the combination, that has not been found, taught, or suggested by the prior art of record which makes these claims allowable over the prior art.

**b.** The primary reason for the allowance of claims **41, 42, and 46** is the inclusion of the method steps of processing image data by receiving inputs for the job of a selected one of plural recording resolutions, a selected one of plural media types and optionally a selected one of plural inks for use in printing the job; in response to the inputs generating a code value from a table of a plural number of selectable code values, the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural media types and optionally plural inks possible for selection for the job.

**c.** The primary reason for the allowance of claims **43 - 45** is the inclusion of the

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combination of the limitations of an ink jet printer apparatus having a controller, in response to job inputs (media type, ink type, resolution), is adapted to generate a code value is generated from a plurality of code values, the number of code values being substantially less than the number of combinations of plural recording resolutions plural receiver media types, and plural inks.

### ***Response to Arguments***

8. Applicant's arguments filed 1 April 2003 have been fully considered but they are not persuasive. Applicant's arguments with respect to claims **1** and **15** have been considered but are moot in view of the new ground(s) of rejection. Applicant's argument that Yamada et al. only discloses dropping two ink drop volumes in two passes instead of three ink drop volumes in one pass is moot in view of a new art rejection in the combination of Asano and Fujita et al.; Asano discloses seven ink drop volumes as taught by Figure 8, any of which can be printed in one printing pass.



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*Conclusion*

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alfred Dudding whose telephone number is (703) 308-6082. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russell Adams, AU 2853, can be reached at (703) 308-2847. The fax phone numbers for this Group are (703) 305-3422 and (703) 308-5841. The examiner's fax phone number is (703) 746-4690.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 308-0956.



JUDY NGUYEN  
PRIMARY EXAMINER

Alfred Dudding



6-05-03